

TASK:

- ◆ OBTAIN TANK WASTE SAMPLES IN SUPPORT OF 241-AZ-101 MIXER PUMP TEST



10/06/99

2/22/01

GOALS:

- ◆ SAFELY OBTAIN ALL SAMPLES
- ◆ MINIMIZE TOTAL RADIATION EXPOSURE
- ◆ MINIMIZE INDIVIDUAL RADIATION EXPOSURE

CHALLENGES:

- ◆ HIGHEST ACTIVITY TANK AT HANFORD
 - Typical grab sample contact dose rate = 5 to 20 Rem/hr
 - Calculated contact dose rate for AZ-101 = 55 Rem/hr

CHALLENGES:

- ◆ LARGE NUMBER OF SAMPLES
 - 72 (normal grab sample set is 3 to 8 samples)
- ◆ LIMITED SPACE



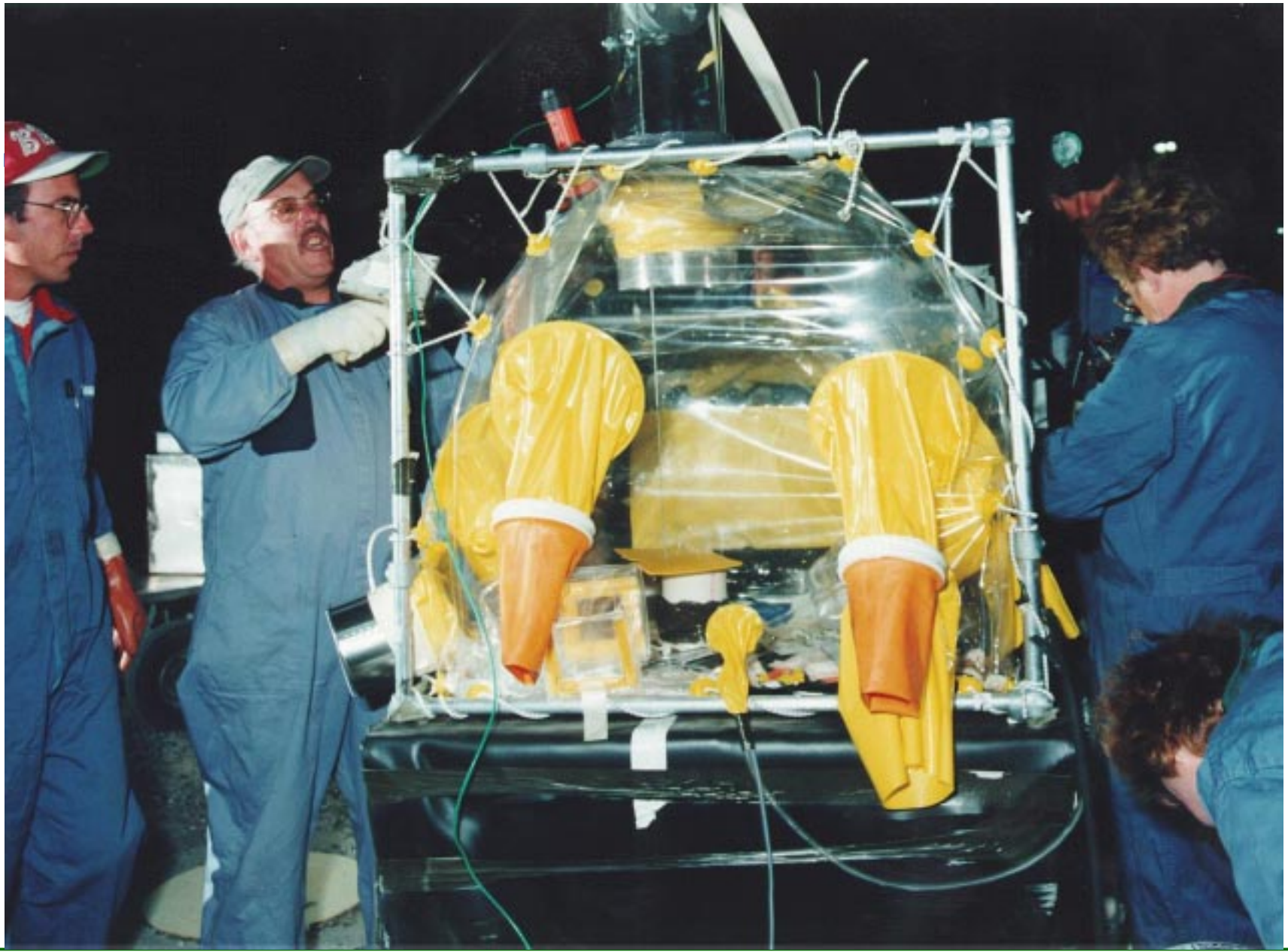
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SOLUTIONS:

- ◆ MODIFIED GLOVE BAG DESIGN
 - Compensate for space restrictions
 - Reduce sample handling time

SOLUTIONS:

- ◆ LEADED ACRYLIC SHIELDING
 - Reduce radiation exposure
 - Minimize visual obstructions
 - Relatively light weight



2/22/01



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SOLUTIONS:

- ◆ MODIFIED RISER ADAPTER DESIGN
 - Spray wash assembly added to allow rinsing of sample bottles
 - Minimize extremity exposure

SOLUTIONS:

- ◆ EXTENSIVE MOCK-UP TRAINING
 - Reduce sample handling time
 - Optimize glove bag and shielding configuration
 - Maximize number of qualified individuals available for job

RESULTS:

- ◆ ~50% REDUCTION IN TOTAL RADIATION EXPOSURE
- ◆ ALL INDIVIDUALS REMAINED BELOW ADMINISTRATIVE CONTROL LEVEL (ACL) FOR WHOLE BODY AND EXTREMITY EXPOSURE

Whole Body
(mrem)

Extremity
(mrem)

500

ACL

15000

126

AZ-101 Highest

5553

65

AZ-101 Average

1232